

§§ 193.2183–193.2185

§§ 193.2183–193.2185 [Reserved]

LNG STORAGE TANKS

§ 193.2187 Nonmetallic membrane liner.

A flammable nonmetallic membrane liner may not be used as an inner container in a storage tank.

[Amdt. 193–17, 65 FR 10960, Mar. 1, 2000]

§§ 193.2189–193.2233 [Reserved]

Subpart D—Construction

§ 193.2301 Scope.

Each LNG facility constructed after March 31, 2000 must comply with requirements of this part and of NFPA 59A (incorporated by reference *see* § 193.2013). In the event of a conflict between this part and NFPA 59A, this part prevails.

[Amdt. 193–17, 65 FR 10960, Mar. 1, 2000, as amended by Amdt. 193–18, 69 FR 11336, Mar. 10, 2004]

§ 193.2303 Construction acceptance.

No person may place in service any component until it passes all applicable inspections and tests prescribed by this subpart and NFPA 59A (incorporated by reference, *see* § 193.2013).

[45 FR 9203, Feb. 11, 1980, as amended by Amdt. 193–17, 65 FR 10960, Mar. 1, 2000; Amdt. 193–18, 69 FR 11337, Mar. 10, 2004]

§ 193.2304 Corrosion control overview.

(a) Subject to paragraph (b) of this section, components may not be constructed, repaired, replaced, or significantly altered until a person qualified under § 193.2707(c) reviews the applicable design drawings and materials specifications from a corrosion control viewpoint and determines that the materials involved will not impair the safety or reliability of the component or any associated components.

(b) The repair, replacement, or significant alteration of components must be reviewed only if the action to be taken—

(1) Involves a change in the original materials specified;

(2) Is due to a failure caused by corrosion; or

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(3) Is occasioned by inspection revealing a significant deterioration of the component due to corrosion.

[Amdt. 193–2, 45 FR 70404, Oct. 23, 1980]

§§ 193.2305–193.2319 [Reserved]

§ 193.2321 Nondestructive tests.

The butt welds in metal shells of storage tanks with internal design pressure above 15 psig must be radiographically tested in accordance with the ASME Boiler and Pressure Vessel Code (Section VIII Division 1), except that hydraulic load bearing shells with curved surfaces that are subject to cryogenic temperatures, 100 percent of both longitudinal (or meridional) and circumferential (or latitudinal) welds must be radiographically tested.

[Amdt. 193–17, 65 FR 10960, Mar. 1, 2000]

§§ 193.2323–193.2329 [Reserved]

Subpart E—Equipment

§ 193.2401 Scope.

After March 31, 2000, each new, replaced, relocated or significantly altered vaporization equipment, liquefaction equipment, and control systems must be designed, fabricated, and installed in accordance with requirements of this part and of NFPA 59A. In the event of a conflict between this part and NFPA 59A (incorporated by reference, *see* § 193.2013), this part prevails.

[Amdt. 193–17, 65 FR 10960, Mar. 1, 2000, as amended by Amdt. 193–18, 69 FR 11337, Mar. 10, 2004]

VAPORIZATION EQUIPMENT

§§ 193.2403–193.2439 [Reserved]

§ 193.2441 Control center.

Each LNG plant must have a control center from which operations and warning devices are monitored as required by this part. A control center must have the following capabilities and characteristics:

(a) It must be located apart or protected from other LNG facilities so that it is operational during a controllable emergency.

(b) Each remotely actuated control system and each automatic shutdown control system required by this part must be operable from the control center.

(c) Each control center must have personnel in continuous attendance while any of the components under its control are in operation, unless the control is being performed from another control center which has personnel in continuous attendance.

(d) If more than one control center is located at an LNG Plant, each control center must have more than one means of communication with each other center.

(e) Each control center must have a means of communicating a warning of hazardous conditions to other locations within the plant frequented by personnel.

§ 193.2443 [Reserved]

§ 193.2445 Sources of power.

(a) Electrical control systems, means of communication, emergency lighting, and firefighting systems must have at least two sources of power which function so that failure of one source does not affect the capability of the other source.

(b) Where auxiliary generators are used as a second source of electrical power:

(1) They must be located apart or protected from components so that they are not unusable during a controllable emergency; and

(2) Fuel supply must be protected from hazards.

Subpart F—Operations

SOURCE: Amdt. 193-2, 45 FR 70405, Oct. 23, 1980, unless otherwise noted.

§ 193.2501 Scope.

This subpart prescribes requirements for the operation of LNG facilities.

§ 193.2503 Operating procedures.

Each operator shall follow one or more manuals of written procedures to provide safety in normal operation and in responding to an abnormal operation that would affect safety. The procedures must include provisions for:

(a) Monitoring components or buildings according to the requirements of § 193.2507.

(b) Startup and shutdown, including for initial startup, performance testing to demonstrate that components will operate satisfactory in service.

(c) Recognizing abnormal operating conditions.

(d) Purging and inerting components according to the requirements of § 193.2517.

(e) In the case of vaporization, maintaining the vaporization rate, temperature and pressure so that the resultant gas is within limits established for the vaporizer and the downstream piping.

(f) In the case of liquefaction, maintaining temperatures, pressures, pressure differentials and flow rates, as applicable, within their design limits for:

- (1) Boilers;
- (2) Turbines and other prime movers;
- (3) Pumps, compressors, and expanders;
- (4) Purification and regeneration equipment; and
- (5) Equipment within cold boxes.

(g) Cooldown of components according to the requirements of § 193.2505.

[Amdt. 193-2, 45 FR 70405, Oct. 23, 1980, as amended by Amdt. 193-18, 69 FR 11337, Mar. 10, 2004]

§ 193.2505 Cooldown.

(a) The cooldown of each system of components that is subjected to cryogenic temperatures must be limited to a rate and distribution pattern that keeps thermal stresses within design limits during the cooldown period, paying particular attention to the performance of expansion and contraction devices.

(b) After cooldown stabilization is reached, cryogenic piping systems must be checked for leaks in areas of flanges, valves, and seals.

§ 193.2507 Monitoring operations.

Each component in operation or building in which a hazard to persons or property could exist must be monitored to detect fire or any malfunction or flammable fluid that could cause a hazardous condition. Monitoring must be accomplished by watching or listening from an attended control center for